

What is claimed is:

[Claim 1] A Braille cell assembly, comprising: a plurality of parallel-polled bimorph reeds, each of which has a top plate, a bottom plate, and a conductor strip sandwiched therebetween; a voltage applied to said conductor strip to establish a virtual bimorph ground; a plurality of clips; each clip of said plurality of clips adapted to mount an associated bimorph reed to a printed circuit board; said plurality of clips including a first plurality of clips secured to a first side of said printed circuit board; and said plurality of clips including a second plurality of clips secured to a second side of said printed circuit board.

[Claim 2] The Braille cell assembly of claim 1, further comprising: each clip of said plurality of clips including a top arm and a bottom arm; said top arm having a contact area; said bottom arm having a contact area; a space between said contact areas being slightly less than a thickness of a bimorph; said top and bottom arms being formed of an electrically conductive flexible and resilient material and said arms being inherently biased toward one another so that a bimorph reed is disposed in sandwiched relation therebetween.

[Claim 3] The Braille cell assembly of claim 2, further comprising: each clip of said plurality of clips including a horizontal top wall connected to said printed circuit board; said top arm extending downwardly from said horizontal top wall to said contact area and upwardly therefrom; each clip of said plurality of clips including a horizontal bottom wall connected to said printed circuit board; and said bottom arm extending upwardly from said horizontal bottom wall to said contact area and downwardly therefrom.

[Claim 4] The Braille cell assembly of claim 1, further comprising: a frame having a top wall and a bottom wall; a plurality of sockets mounted on said top wall in depending relation to said top wall and in spaced relation to one another; each socket of said plurality of sockets adapted to receive a printed circuit board; and a printed circuit board disposed in each socket of said plurality of sockets.

[Claim 5] The Braille assembly of claim 4, further comprising: an angle wall having a first part disposed in abutting relation to a leading end of said frame top wall, said first part of said angle wall being coplanar with said top wall; a plurality of sets of pinholes formed in said first part of said angle wall; said angle wall having a second part depending from a leading end of said first part, said second part having a lower end disposed in abutting relation to a leading end of said frame bottom wall; each pinhole of said plurality of sets of pinholes being adapted to slideably receive a pin.

[Claim 6] The Braille assembly of claim 5, further comprising: an upstanding flat wall disposed in abutting relation to a second longitudinal edge of said frame bottom

wall; a protuberance that protrudes from a trailing end of each of said printed circuit boards; a plurality of slots formed along the extent of said upstanding flat wall;

each slot of said plurality of slots adapted to receive a protuberance of an associated printed circuit board; a corresponding plurality of slots formed in said top wall, each slot formed in said top wall adapted to receive a leading end of a printed circuit board along a top edge thereof; each slot formed in said upstanding flat wall and in said top wall cooperating with one another to provide a mount for each printed circuit board of said plurality of printed circuit boards.

[Claim 7] The Braille cell assembly of claim 6, further comprising: a first set of bimorph reeds having a common length; and a second set of bimorph reeds having a common length.

[Claim 8] The Braille cell assembly of claim 7, further comprising: said plurality of Braille pins being provided in a plurality of lengths including a first length, a second length greater than said first length, a third length greater than said second length, and a fourth length greater than said third length.

[Claim 9] The Braille cell assembly of claim 8, further comprising: each of said Braille pins being formed independently of one another.

[Claim 10] The Braille cell assembly of claim 8, further comprising: each of said Braille pins being formed in connected relation to a common base so that one set of connected Braille pins is adapted to fit within one Braille cell; said Braille pins being releasably connected to said common base so that individual Braille pins of said set of connected Braille pins are detachable from said common base after being placed into respective pinholes of a Braille cell.

[Claim 11] The Braille cell assembly of claim 8, further comprising: a first tip of said first Braille pin being extended when said first bimorph reed abuttingly engages and displaces a lowermost end of said first Braille pin; a first tip of said second Braille pin being extended when said second bimorph reed abuttingly engages and displaces a lowermost end of said second Braille pin; a first tip of said third pin being extended when said third bimorph reed abuttingly engages and displaces said a lowermost end of said third Braille pin; and a first tip of said fourth pin being extended when said fourth bimorph reed abuttingly engages and displaces a lowermost end of said fourth Braille pin.

[Claim 12] The Braille cell assembly of claim 8, further comprising: a monolithic cell cap that covers each Braille cell of said plurality of Braille cells; said monolithic cell cap providing a tactilely consistent surface to enhance the Braille readability of the Braille cell assembly.

[Claim 13] The Braille cell assembly of claim 4, further comprising: said bottom wall of said frame being formed of a material that does not require additional isolation from a metal chassis to which it is mounted.

[Claim 14] The Braille cell assembly of claim 4, further comprising: a first plurality of buttons; a first comb-like holder for holding the first plurality of buttons; each button of said first plurality of buttons having a head and a stem, said head being enlarged with respect to its stem; said first comb-like holder including contiguous teeth that are spaced apart from one another; and each button being mounted to a free end of each tooth.

[Claim 15] The Braille cell assembly of claim 14, further comprising: a second plurality of buttons; a second comb-like holder for holding the second plurality of buttons; each button of said second plurality of buttons having a head and a stem, said head being enlarged with respect to its stem; said second comb-like holder including contiguous teeth that are spaced apart from one another; and each button being mounted to a free end of each tooth.

[Claim 16] The Braille cell assembly of claim 15, further comprising: said first and second comb-like holders being mounted to said top wall of said frame in confronting relation to one another.

[Claim 17] The Braille cell assembly of claim 16, further comprising: a monolithic cap that covers said first and second comb-like holders; said monolithic cap being releasably engaged to said top wall of said frame.

[Claim 18] An electromechanical Braille cell assembly, comprising: a frame; a plurality of sockets mounted in said frame, each socket of said plurality of sockets adapted to receive a printed circuit board; a printed circuit board disposed in each socket of said plurality of sockets; and a plurality of parallel-polarized bimorphs, each bimorph of said plurality of parallel-polarized bimorphs being mounted to a corresponding printed circuit board.

[Claim 19] The electromechanical Braille cell assembly of claim 18, further comprising: a plurality of clips, each clip of said plurality of clips adapted to mount each bimorph of said plurality of bimorphs to a corresponding printed circuit board.

[Claim 20] A clip adapted for use in an electromechanical Braille cell assembly, comprising: a top arm and a bottom arm; said top arm and said bottom arm each having a contact area; said top and bottom arms being formed of an electrically conductive, flexible and resilient material; and said top and bottom arms being inherently biased toward one another so that a bimorph is clampingly disposed in sandwiched relation between said respective contact areas of said top and bottom arms.

[Claim 21] A Braille cell cap, comprising: a monolithic Braille cell cap that covers a plurality of Braille cells; said monolithic cap enhancing the tactile feel of a Braille cell assembly by eliminating the uneven surface provided by a plurality of individual Braille cell caps.

[Claim 22] The Braille cell cap of claim 21, further comprising: a first plurality of buttons; a first comb-like holder for holding the first plurality of buttons; each button of said first plurality of buttons having a head and a stem, said head being enlarged with respect to its stem; said first comb-like holder including contiguous teeth that are spaced apart from one another; and each button being mounted to a free end of each tooth.

[Claim 23] The Braille cell assembly of claim 22, further comprising: a second plurality of buttons; a second comb-like holder for holding the second plurality of buttons; each button of said second plurality of buttons having a head and a stem, said head being enlarged with respect to its stem; said second comb-like holder including contiguous teeth that are spaced apart from one another; and each button being mounted to a free end of each tooth.

[Claim 24] The Braille cell assembly of claim 23, further comprising: said first and second comb-like holders being mounted to a top wall of a Braille cell assembly frame in confronting relation to one another.

[Claim 25] The Braille cell assembly of claim 24, further comprising: said monolithic cap covering said first and second comb-like holders; said monolithic cap being releasably engaged to said top wall of said frame.